CRITICAL THINKING: CRITICAL PEDAGOGUE AND EVALUATION

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ABSTRACT

Education being a lifetime process is dynamic and vulnerable to social, political and cultural positioning of its system. This nature in not a very distinctive manner, is also found in human beings, and is rather an imperative feature of human evolution. The propensity of education in its real sense goes far beyond acquisition of certain facts or a degree and has effects to the formation and changes brought about in human nature and personality. Critical thinking in the this paper is presented as an approach which is important for both the pedagogue, to be equipped with while transacting the curriculum and also for learners to engage in a broader perspective of things and be discriminative of their environment, both in negative and positive ways, even neutral when needed. The paper concludes with a proposal for reformation in the very aims, nature and process of examination system in the country in order to mark an eventual cessation to the practices like regurgitating and unreasoned articulation.

KEYWORDS: Critical Thinking, Education, Evaluation, Pedagogue, Reformation.

Thinking can be explained as manipulation or transformation of some internal representation, which is so arranged in order to deal with a mental or physically present challenge, harm or threat. Descartes described thinking as reasoning, reason which is a chain of simple ideas linked by applying strict rules of logic (McGregor, 2007). His discoveries in the domain of neurological transmissions between receptors and affecters in various vertebrate eventually led to the declaration of „cogito ergo sum" meaning „I think therefore I am" (Gaukroger, 2003).

INTRODUCTION TO CRITICAL THINKING:
An indirect reference to critical thinking can be traced back to the literature attributed to Francis Galton (1605) as he mentioned it as "desire to seek, patience to doubt, fondness to mediate, slowness to assert, readiness to consider, carefulness to dispose and set in order and hatred for every kind of imposture". The word critical comes from the Greek word „*Kritikos*", which refers to the act of judging, and the way Socratic argument described thinking in the ancient times (McGregor, 2007). Later adapted in Latin as „*Criticus*" and eventually in the world language called „critical". In the modern date, the Critical Thinking Cooperation (2006) defines it as an *ability which is beyond memorization*. It is the "intellectually disciplined process if actively and skilfully conceptualizing, applying, analysing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action" as defined by Sriven &Paul (2007). Critical thinking hence refers to thorough or exhaustive thought which requires careful acquisition and interpretation if information and use of it to reach a well-justified conclusion. According to Encarta (2009) it can be described as „disciplined intellectual criticism that combines research, knowledge of historical context and balanced judgement". It thus involves the determination of the meaning and importance of what is to be observed, reciprocated or expressed or concerning a given inference or argument, later declaring whether or not there exists an adequate justification to accept the conclusion as true.

The idea of critical thinking is not about a particular function or a set of human ability, it is rather an approach of how humans question. As explained to be a thoughtful, deliberate judgement or reflective decision-making, in the most accurate sense, it can be stated that critical thinking is purposeful and pervasive human phenomenon. From the very identification of a problem, to solving everyday problems, hassles; making decisions; gathering pertinent information; comprehending language with accuracy, clarity anddiscernment. It basically helps an individual to develop his/her own opinions- one needs to gather information, analyse, interpret and synthesize it which implies the pertinence of engaging into critical thought every day. It is therefore clear that the need and significance of critical thought is not just limited to its application in education, it is instead needed in the daily functioning of every individual. In fact, some experts are convinced that critical thinking begins from the very origin of human civilisation, believing it to be the cornerstone of journey mankind has covered from its origin to the contemporary times of so called modernisation and globalisation. Critical thinking is directed by both dispositions and abilities as both of these aspects work together in the formation of what is to be believed or to be done and what not.

Significance of critical thought: The general thinking pattern in featured with numerous distortions as it biased, partial, uninformed or down-right prejudiced. In spite of possessing knowledge of the method of logical inquiry and reasoning,

mistakes may take place which can be attributed to the thinker"s inability to apply the methods or because of infamous traits like ego-centricism. For this reason, critical thinking is essential as it helps in identification of prejudice, bias, propaganda, self-deception, misinformation and so on. Critical thinking is also a significant process within learning as it operates at two levels, wherein first students internalize the given information and then learn to effectively use those ideas, principles and theories in novel ways.

Moreover in a developing country like India, which is a third world nation and is progressing at a drastic rate in the educational domain, critical thinkers are pertinently required at every stage of educational planning and execution. The predetermined disciplines of education in India, may not account for all the possibilities in terms of technology and innovation. For this reason, it becomes even more explicit to realise the need for multidisciplinary or interdisciplinary approach to education, which certainly requires critical thinking abilities. Thought of this kind provides the skills required to solve problems and issues in the environment regardless of their nature. In the 21st century India, there is a need for commitment for resolution of ensuing societal problems which is possible via appropriate vision, through and of education.

Education: meaning and imperative aims:
Education which is said to be a lifelong process which aims to nurture the individual, to help, to realize the full potential that already exists inside him or her. The most tacit implication of being educated is to have a strong thinking ability, to know when, where and how much to generalise and discriminate in variety of situations one will be posed in non-academic and real life situations. While students evaluate what they learned and their learning methods, they manifest their critical thinking abilities (Emir, 2009). In addition to this, Cotton (1991) writes, *"If students are to function successfully in a highly technical society, then they must be equipped with lifelong learning and thinking skills necessary to acquire and process information in an ever changing world".* Benjamin Bloom (1978) in his taxonomy stated that education systems and especially school systems function more than just promoting the practice of irrational cramming but focus on the development of higher order thinking skills like analysing and evaluating concepts, processes, procedures and principles. Education certainly has an imperative to quip the learners with the mechanism of dealing with the problems and emerging dilemmas so as to make their existence more meaningful and happy, in their society. In this sense, no one specified curriculum or teaching pedagogy can completely justify the actual aim of education, which is juxtaposed to the attainment of what Maslow calls *„Self-actualisation"* or at least a good education system should be able to direct students to realise their potentials if not complete utilisation of them.

Herein, it is realized that a *critical pedagogue is the most significant agent for accomplishment of educational imperatives across the formal teaching and learning process*.

REVIEW OF LITERATURE:
Two major disciplines can separately help in the understanding of „critical thinking" as a construct. Firstly, the philosophical vantage point directs to the norms of good thinking, the concept and motive of human thought and cognitive skills necessary for an objective world view. Secondly, the psychological approach of

experimental explanation of thinking, individual differences in application and acquisition of thought and problem solving as an implicit function of critical thinking. Paul (1989) attempted to examine the adaptation of critical thinking dispositions in learning environment. His study suggests dispositions to be disciplined and self-directed thinking could be taught and that critical thinking was a result of skills like spotting conclusions, examining premises, forming conclusions and diagnosing fallacies. Psychologists for a long time have purported that individual cognitive skills are developed in a social context (Rogoff 1990). Apart from the basic yet deep articulation of critical thinking gained from philosophical and psychological perspectives, educational perspective also tries to explain that learners can adopt deep or surface learning approaches,which include skimming, memorising and regurgitating for tests, whereas deep learning requires a critical understanding of material. Biggs (1985) associated deep learning approaches with „*affective involvement*‟ which is backed by interaction. The importance of the social context to learning has been emphasised by Lipan (1991) who believe that the development of a „community of enquiry‟ is essential for the development of higher level, critical thinking skills within the individual. A tacit link between critical thinking, social interaction and deep learning has emerged from the above review.

The Significance of a Critical Pedagogue:
A very essential feature of a critical thinker is one‟s ability to question. Elder and Paul (1997) proposed that the *art of questioning* is essential to the *art of learning*. Herein, the teacher may play an essential role by first questioning the student in a Socratic manner and by feeding his/her enthusiasm. The teacher who fosters critical thinking fosters reflectiveness in students, by asking questions that stimulate thinking which is at the core of construction of knowledge. The experts use the metaphorical phrase *Critical spirit*, (in a positive sense) referring to a „probing inquisitiveness, a keenness of mind, a zealous dedication to reason, and a hunger or eagerness for reliable information‟. Critical thinkers are the people who have „acquired the ability‟ to research, question, and actively refuse the information as it is, rather think about it analytically and evaluate it to explain it with logic basis. Such individuals are also aware of what they are thinking by engaging inactive identification of problem, rational inquiry, conceptual analysis, nature of argument, identification of premises and conclusion. According to Fisher and Scriven (1997) it involves "skilled and active interpretation and evaluation of observations, communications, information and argumentation. It also significantly calls for learning the *art of suspending judgement*.

Rationale:
There appears to be a considerable degree of incongruence between the actual meaning of education and the means being used to accomplish that meaning. In the contemporary times, at a very basic school level, the ultimate aim of learning throughout an academic year is to complete it with a considerably good grade, which will determine one student‟s achievement in relation to the other student. This is the major reason that the cramming ability of students is more strengthened instead of enhancing their novel and creative thinking, which brings the researchers to the *establishment of a relationship between critical thinking and evaluation*. The inculcation of interest and raising up of aptitude takes a back seat due to the nature ofeventual goals that students are posed with by the end of each academic year or for that matter, the end of entire formal education process, wherein students are assessed on the basis of percentile, which would explain how many students stand above or below them in a specific subject and completely negating the degree of improvement attained within the various cognitive faculties of that (one) particular student. This brings the researchers to the most basic yet pertinent *'critique of the present evaluation system'*. The consideration for the appropriate approach, correct design of the curriculum and adequate transaction of the syllabus is not what students, teachers and at times policy makers, are concerned about. Unfortunately, the educational aim has been materialistically limited to primarily, the achievement of a good score, and then limits itself to acquiring a respectable professional degree which would help one to earn a handsome living. In this process of determining means and end of education function, there is left almost no scope for the enhancement of a student‟s personality, his/her ability to think reason or question. In the wake of completing the prescribed syllabus in a specific duration, teachers very often fail to tell students „how to learn‟ and focus more on „what to learn‟ and „how to reciprocate it in the final examination‟.

Barriers to the development of critical thinking: Present formal education systems witness issues like struggle of the teacher to engage students in critical thinking activities (Tempelaar, 2006) and that students seldom use critical thinking skills to solve complex and real-world problems (Barlett, 2002; Rippin, Booth, Bowie & Jordan, 2002). Also the application of content, teaching techniques that promote memorization (often temporary knowledge) do not support critical thinking. Another major barrier, which the present paper attempts to magnify, is related to the nature and composition of assignments, along with their role in encouraging practices like repetition and memorisation without ability to understand and articulate what has been mugged up. Time constraints also limit the teacher‟s initiative of engaging students in critical thought, as instructors often have a great deal of content to cover within a fixed duration. Also teachers often are not well trained in critical thinking methodology (Broadbear, 2003). Some textbooks provide chapter-based critical thinking discussion questions, but instructional material often lack additional critical thinking resources. Lastly, it has been observed that both teachers and students have preconceptions

about the content that also acts as a mental block in their ability to think analytically about it.

PRESENT STUDY AND OBJECTIVES:
This paper firstly, attempts to identify the significance of a critical pedagogue in inculcating critical approach among young learners. Secondly, it places emphasis on the growing need to inculcate critical thinking abilities at every step of education by the virtue of evaluation reformation such that it brings down the component of rote memorisation and eventual comparison of marks of one student‟s with other. It rather proposes to introduce unconventional assessment techniques which focuses on the examination of various mental faculties of students at an intra-psychological level instead of inter psychological comparison of students amongst each other. The objective and nature of assessment tools are to be modified for the achievement of the actual aim of education, in order to cause a cessation to the practice of rote memorisation.

METHODOLOGY:
Centralising the first objective of the study, the California Critical Thinking Disposition Inventory (CCTDI) was administered on pre-service teacher trainees. This test was developed by Facione & Facione in 1992, as a self-rating tool in order to „state yes or no to each item‟, with reference to one‟s activities during the past one week. The sample comprised of 110, 1st and 2nd year B.ed students of a reputed institute. The collected data was first individually scored for each participant and thereafter collectively tabulated within the categories of disposition, suggested by the developers of this inventory (table 1)

RESULTS:

Table 1: Presentation of results of CCTDI on B.ed students

Scores and descriptive categories	No of participants
I. 70 and above (positive disposition towards critical thinking)	72
II. 50-70 (ambivalent/mixed disposition)	25
III. 50 and below (adverse /hostile towards critical thinking)	13

ANALYSIS AND DISCUSSION:
Critical thinking as understood from the discussion in previous sections, employs not only logic but broad intellectual criteria such as clarity, credibility, accuracy, precision, relevance, depth, breath and significance. In the present paper, all these attributes are discussed not merely as characteristics of critical thought, but as functions of a critical pedagogue, whobridges the gap between educational aims and their execution. Teachers are an indispensible asset in transaction of curriculum and designing the characters and personalities of many students (Srivastava & Saran, 2018). This personality is largely governed and directed by the way students think, wherein the role of a critical pedagogue is essential, and not satisfied alone by curriculum formation and policy making. In congruence to this premise, the critical thought disposition of „teachers to be‟ was assessed, as presented in table 1. It is not surprising that 75 participants display a positive disposition towards critical thought; it is rather unfortunate that 38 (25+13) future teacher teachers still do not display a positive likelihood of engaging into critical thinking. The finding for 2nd and 3rd category may be pose a challenge to the students of these teachers in future and might hamper the development of a critical approach of their students. Hence, this finding is considered to be moderate with respect to the careers that the participants had decided for themselves, as teaching would require novel approach and discriminative analysis of every aspect that they come across. This is true because a teacher is first a student.

In the context of the second attempt of the paper, it is important for educationists, policy framers, curriculum designers and especially teachers to understand the fact that critical thinking unlike intelligence is not determined by the effect of genetics, it is rather a learnt skill which requires instruction and practice to be given across the process of teaching and learning. It is for this reason, that authors of the present paper are convinced to strongly suggest an Evaluation reformation- For the attainment of the True Meaning of Education. Although some students may be naturally inquisitive, but they still require training to systematise their analytical, fair and open-minded pursuit of knowledge when dealing with familiar and not so familiar situations. The success of this paper rests upon two fundamental statements, which are to be clearly understood by all the stakeholders:

1. The development of Critical thinking skills is one of the mandatory obligations that should be promised to each individual who has been posed to formal education system.

2. Assessment of this ability is very different and wide, in its scope, from measurement of student‟s performance or one‟s ability to regurgitate.

It is hence, in the social context that critical thinking would emerge by its functional interaction with individual analysis. Garrison (1992) emphasised this *"Thus, it is in the shared world that true meaning is achieved. While constructing*

meaning is a personal responsibility, the process of critical thinking also includes the application of meaningstructures to the specifics of the context. This is, if meaning is to be more than belief it must go beyond simply internal reflection. The truth of concepts is determined through collaborative action which necessitates sharing control of the process".

In their research, Haynes and Bailey (2003) emphasized the importance of asking the right questions to stimulate students" critical thinking skills, which in this paper is presented not only as the teaching pedagogy but also as an essential assessment approach. Subjective tools such as essay questions and case studies, which require students to apply their knowledge to new situations and are better indicators of understanding than objective type- true/false or standardised multiple choice assessments. Teachers may create multiple-choice questions which can have more than a „particular correct answer". To enhance student"s processing skills, it is important to review test questions and explain correct answers by modelling the critical thinking process (Brown & Kelly, 1986; Duplass & Ziedler, 2002). Additionally, assignments should emphasize thinking rather than facts (Ennis, 1993). Graded assignments, quizzes or tests should become intellectual challenges rather than memory recall (Schafersman, 1991). Techniques like open books examinations and take home bonus questions/assignments are a significant move to the acknowledgement and assessment of critical thought amongst students. Situation tests can also be designed with reference to particular subject content to assess and stimulate logical and spontaneous decision making abilities of students. Mathematical exercises and quantitative word problems teach problem solving skills along with application of divergent logic that can be used in everyday life, which is an important function of critical thought. Most importantly the ideal way to teach and evaluate critical thinking is to require that students write. Writing forces students to organize their thoughts, contemplate their topic, evaluate their data in a logical fashion, and present their conclusions in a persuasive manner. Good writing is the epitome of good critical thinking.

CONCLUSION:
Critical Theory in education challenges and interrogates how Education operates in support of this system, and poses alternative models of learning premised upon the realisation of personal and cultural potential in the creation of a more just and equitable society. It is a system of imposed social, cultural, political and economic control which curbs the enthusiasm of the creative impulse and which has as its ultimate goal the maintenance and continuation of the existing structures and processes of power exercised by a very few powerful individuals and structures in society. In this paper the significance of a critical pedagogue has been introduced along with an assessment of critical thinking disposition of future teachers. Eventually the researchers adamantly propose some serious modifications in the contemporarily prevalent structure and process of evaluation in congruence to the needs and possible challenges which future generations of 21st century India might be exposed to.

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APPENDIX

Critical Thinking Mindset Self-Rating Form:
Answer yes or no to each. Can I name any specific instances over the past 7 days when I:

1. was courageous enough to ask tough questions about some of my longest held and most cherished beliefs?
2. backed away from questions that might undercut some of my longest held and most cherished beliefs?
3. showed tolerance toward the beliefs, ideas, or opinions of someone with whom I disagreed?
4. tried to find information to build up my side of an argument but not the other side?
5. tried to think ahead and anticipate the consequences of various options?
6. laughed at what other people said and made fun of their beliefs, values, opinion, or points of views?
7. made a serious effort to be analytical about the foreseeable outcomes of my decisions?
8. manipulated information to suit my own purposes?
9. encouraged peers not to dismiss out of hand the opinions and ideas other people offered?
10. acted with disregard for the possible adverse consequences of my choices?
11. organized for myself a thoughtfully systematic approach to a question or issue?
12. jumped in and tried to solve a problem without first thinking about how to approach it?
13. approached a challenging problem with confidence that I could think it through?
14. instead of working through a question for myself, took the easy way out and asked someone else for the answer?
15. read a report, newspaper, or book chapter or watched the world news or a documentary just to learn something new?
16. put zero effort into learning something new until I saw the immediate utility in doing so?
17. showed how strong I was by being willing to honestly reconsider a decision?
18. showed how strong I was by refusing to change my mind?
19. attended to variations in circumstances, contexts, and situations in coming to a decision? 20 refused to reconsider my position on an issue in light of differences in context, situations, or circumstances?